



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|--------------------|
| 10/618,227 | 07/11/2003 | Jung-Lin Pan | I-2-0456.1US | 4405 |
| 24374 | 7590 | 04/07/2009 | EXAMINER | |
| VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103 | | | | PATHAK, SUDHANSU C |
| ART UNIT | | PAPER NUMBER | | |
| 2611 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 04/07/2009 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/618,227 | PAN ET AL. | |
| | Examiner | Art Unit | |
| | SUDHANSU C. PATHAK | 2611 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 18 March 2009.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 3-5,8-10,13-15 and 18-20 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 3,4,8,9,13,14,18 and 19 is/are rejected.
 7) Claim(s) 5,10,15 and 20 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 11 July 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

1. Claims 3-5, 8-10, 13-15 & 18-20 are pending in the application.
2. Claims 1-2, 6-7, 11-12, 16-17, 21-33 have been canceled.

Response to Arguments

3. Applicant's arguments with respect to claims 3-5, 8-10, 13-15 & 18-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 8, 13 & 18 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The claims recite the limitation of "creating a chirp sequence v based on the chirp waveform", however the claims do not recite the relationship between the chirp sequence and the received signal and further the claims do not recite how the method performs the channel estimation.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-4, 8-9, 13-14 & 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar (Digital Communications; Chapter 1, Section 1.6, Pages 30-33; Copyright 1988).

In regards to Claims 3-4, 8-9, 13-14 & 18-19, Sklar discloses a method for performing a channel impulse response comprising receiving a time domain signal (Fig. 1.9, element $y(t)$) wherein the received signal is a circular convolution (Page 31, Eq. 1.46) of the transmitted signal (Fig. 1.9 & Eq. 1.46, element $x(t)$) and the channel impulse response (Fig. 1.9 & Eq. 1.46, element $h(t)$). Sklar further discloses presenting the received signal in the frequency domain (Fig. 1.9 & Eq. 1.48, elements $X(f)$, $H(f)$, $Y(f)$) by performing fourier transform (Page 31, Section 1.6.2). Sklar further discloses computing the channel impulse response in the frequency domain by dividing the received signal (Eq. 1.49, element $Y(f)$) with the transmitted signal (Eq. 1.49, element $X(f)$). However, Sklar does not explicitly disclose multiplying element-to-element by a chirp waveform. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that there is no criticality in multiplying the received sequence with the transmitted sequence (midamble) this is a matter of design choice depending on the implementation of chirp spread spectrum (CSS) system wherein the midamble sequence in the transmitter is multiplied by the chirp waveform and this is provided in the receiver so as to despread the transmitted signal. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that there is no criticality in

selecting the chirp waveform as recited (in claims 4, 9, 14 & 19) this is a matter of design choice so as to select an exponential chirp in a CSS system.

Allowable Subject Matter

8. Claims 5, 10, 15 & 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUDHANSU C. PATHAK whose telephone number is (571)272-5509. The examiner can normally be reached on 9am-5pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on 571-272-3042.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sudhanshu C Pathak/
Primary Examiner, Art Unit 2611